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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,085	07/08/2003	Saikumar Jayaraman	2207/ 1212002	9663

7590 09/21/2004
Kenyon & Kenyon
Suite 600
333 W. San Carlos Street
San Jose, CA 95110

EXAMINER

KEEHAN, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,085

Applicant(s)

JAYARAMAN ET AL.

Examiner

Christopher M. Keehan

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1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION**Examiner's Comments**

A call was placed to applicant to request an examiner's amendment to put the case in condition for allowance. It was suggested to add, at page one of the specification, under Related Application, after "2001", --, now U.S. Patent 6,620,512--. Further, claim 23 contains repetitive claim language, and it was requested that claim 19 be amended to include after the chemical formula, --wherein $n=0-3$ and $n'=5$ to 50--. However, upon further searching, relevant prior art has been discovered. Therefore, although these changes should still be made as they are not art related, but directed more toward clarity, the claims are not allowable as previously indicated, and have been treated as set forth below. The examiner regrets any inconvenience this might have caused applicant.

Claim Objections

Claims 19-24 are objected to because of the following informalities: in claim 19, applicant claims "maleic anhydride polymers, maleic anhydride oligomers, maleic anhydride copolymer, and mixtures thereof". However, it appears that the structure can only be a copolymer. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inomata et al. (JP 2001-139669) in view of Langari et al. (6,261,871). The examiner is relying on the machine translation, attached hereto. Regarding claims 19, 21, and 22, Inomata et al. disclose a resin composition as claimed (Abstract and the structure at section 0048, when $n=0$). Inomata et al. also disclose using the composition as an underfill composition (section 0064). Inomata et al. do not appear to disclose a method of fabricating a device as claimed. Langari et al. disclose a method of fabricating a semiconductor device by the steps as claimed, and using an underfill composition therein (Figure 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the underfill composition of Inomata et al. in the process as taught by Langari et al. because Inomata et al. teach that the composition can be used as an underfill composition, and Langari et al. disclose a typical method of fabricating a device by using an underfill composition.

Regarding claim 20, Inomata et al. do not appear to specifically disclose providing the underfill composition simultaneously during reflow. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the underfill composition simultaneously during reflow to save time, producing faster processing times and resulting in a more efficient process.

Regarding claims 23 and 24, Inomata et al. disclose curing at a time and temperature as included in the ranges as claimed (section 0059).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Keehan whose telephone number is (571) 272-1087. The examiner can normally be reached on Monday-Friday, from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Keehan

September 15, 2004

Christopher Keehan
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